



UNITED STATES PATENT AND TRADEMARK OFFICE

W
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,694	05/27/2005	Shuji Hahakura	040256-0137	2262
22428	7590	03/02/2007	EXAMINER	
FOLEY AND LARDNER LLP			ESTRADA, MICHELLE	
SUITE 500			ART UNIT	
3000 K STREET NW			PAPER NUMBER	
WASHINGTON, DC 20007			2823	
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
3 MONTHS	03/02/2007	PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/536,694	HAHAKURA ET AL.	
	Examiner	Art Unit	
	Michelle Estrada	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 21 November 2006.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1 and 3-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1 and 3-9 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoshizaki et al. (5,922,651) in view of Okamoto et al. (JP-62157641), and further in view of Kobayashi et al. (6,993,823).

Re claims 1 and 4, Hoshizaki et al. disclose forming a superconducting layer on a base layer by performing a film deposition, the process is repeated until the desired thickness is obtained; wherein the film thickness of a superconducting film made in each film deposition is $0.225 \mu\text{m}$ (225 nm, Col. 9, lines 60-67), which overlaps the recited range of claim 1 ($0.3 \mu\text{m}$ or less); wherein the oxygen gas pressure is below atmospheric pressure (Col. 10, lines 45-50).

Hoshizaki et al. do not disclose wherein the base layer is composed of Cu.

Okamoto et al. disclose depositing a superconducting layer on a base layer (1) composed of Cu.

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Hoshizaki et al. and Okamoto et al. to enable the base layer formation step of Hoshizaki et al. to be performed according to the teachings of Okamoto et al. because one of ordinary skill in the art would have been motivated to look to alternative

suitable methods of performing the disclosed base layer formation step of Hoshizaki et al. and art recognized suitability for an intended purpose has been recognized to be motivation to combine. See MPEP 2144.07.

The combination does not disclose performing the deposition without substantially changing an oxygen gas pressure between the deposition times.

Kobayashi et al. disclose maintaining a constant pressure in the oxygen during deposition to form a stable oxide superconducting layer.

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Hoshizaki et al., Okamoto et al. and Kobayashi et al. to enable the pressure step of the Kobayashi et al. to be performed in the process of the combination to enable the formation of a stable superconductive layer.

Re claims 3, 5, 7 and 8, One of ordinary skill in the art would have been led to the supply velocity and the pressure through routine experimentation to achieve a desired rate of deposition. In addition, the selection of the velocity it's obvious because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are *prima facie* obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. *In re Woodruff*, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also *In re Huang*, 40 USPQ2d 1685, 1688 (Fed. Cir. 1996)(claimed ranges or a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). See also *In re Boesch*, 205 USPQ 215 (CCPA)

(discovery of optimum value of result effective variable in known process is ordinarily within skill or art) and *In re Aller*, 105 USPQ 233 (CCPA 1995) (selection of optimum ranges within prior art general conditions is obvious).

Note that the specification contains no disclosure of either the critical nature of the claimed supply velocity and pressure or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen supply velocity and pressure or upon another variable recited in a claim, the Applicant must show that the chosen supply velocity and pressure are critical. *In re Woodruf*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Re claims 6 and 9, Hoshizaki et al. disclose wherein the deposition is stopped between each of the at least three times of performing the film deposition (see fig. 2).

Response to Arguments

Applicant's arguments filed 11/21/06 have been fully considered but they are not persuasive. Applicant argues that none of the references disclose the new limitation of "wherein the oxygen gas pressure is below atmospheric pressure". However, this limitation can be found in Hoshizaki et al. at Col. 10, lines 45-50.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Michelle Estrada whose telephone number is 571-272-1858. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2800.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michelle Estrada
Primary Examiner
Art Unit 2823

ME
February 27, 2007